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Shih

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(54) **CLIP WITH LIGHT**

(76) Inventor: **Leo Shih**, Taichung (TW)

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F21V 17/06 (2006.01)
B25B 9/02 (2006.01)

(52) **U.S. Cl.** **362/438**; 362/119; 362/157; 362/191; 362/208; 294/99.1; 294/99.2; 315/362

(58) **Field of Classification Search** 362/114, 362/116, 118, 119, 157–208, 438; 294/99.1, 294/99.2; 315/362
See application file for complete search history.

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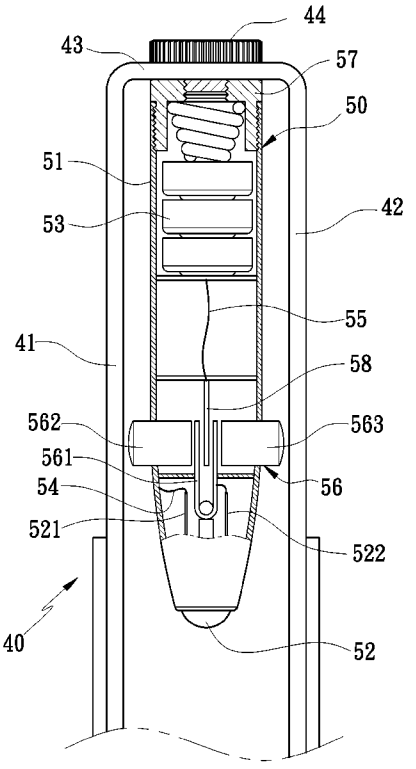
Primary Examiner — Douglas W Owens
Assistant Examiner — Thai Pham

(57) **ABSTRACT**

A clip with a light comprises a body including a first and a second clip members to be flexibly pressed, and an illuminating device disposed between the first and second clip members and having a receiving cylinder, a light received in the receiving cylinder and provided with a first and a second connecting legs, a cell set received in the receiving cylinder to supply power to the light, a power circuit mounted in the receiving cylinder and provided with an electrode of a rear end of the cell set electrically connected to the first connecting leg of the light and the second connecting leg electrically coupled to an electrode of a front end of the cell set, an actuating member series connected onto the power circuit and having pressing blocks extending out of the receiving cylinder to press and release the first and second clip members, controlling the actuating member.

19 Claims, 17 Drawing Sheets



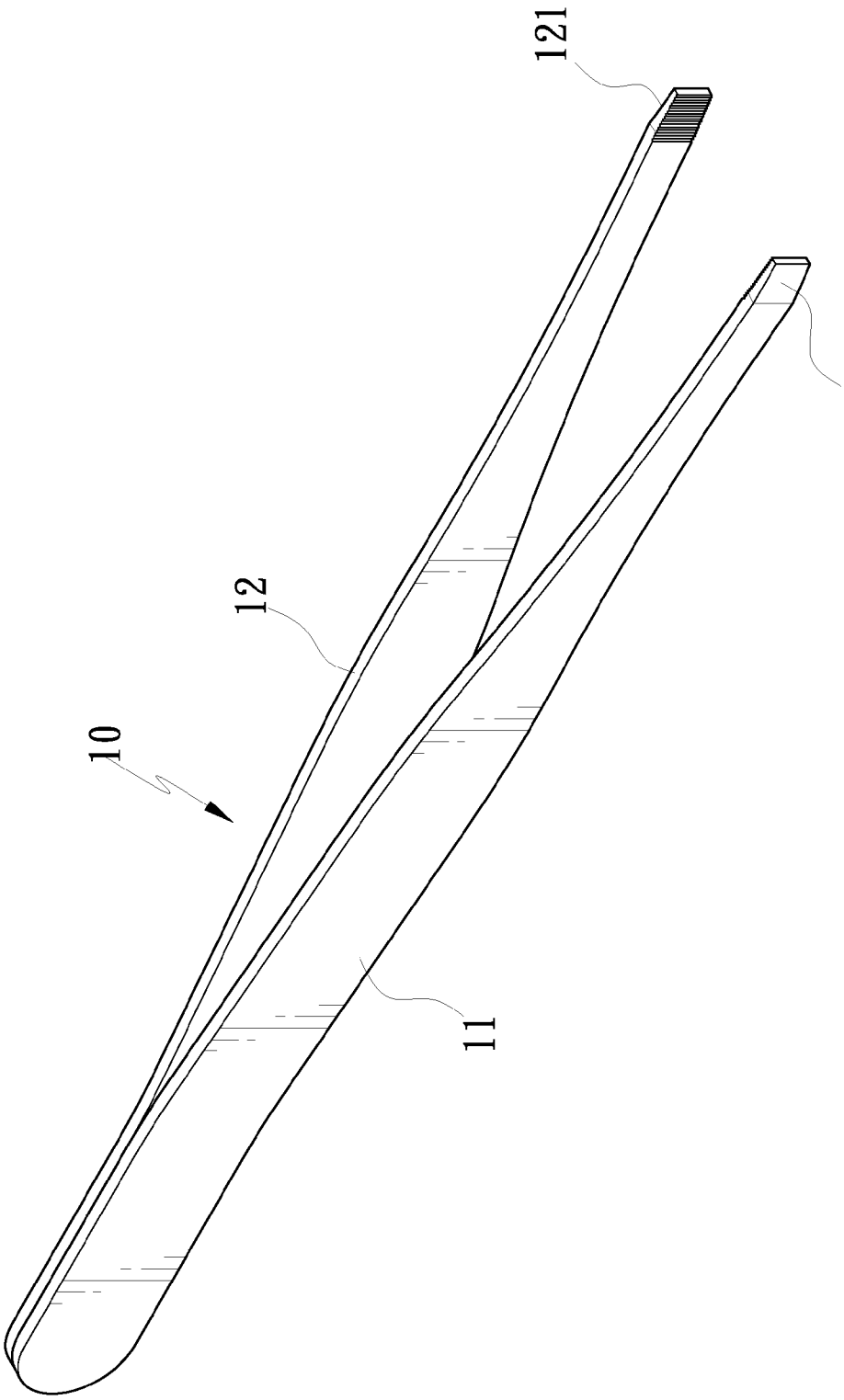


FIG. 1
PRIOR ART

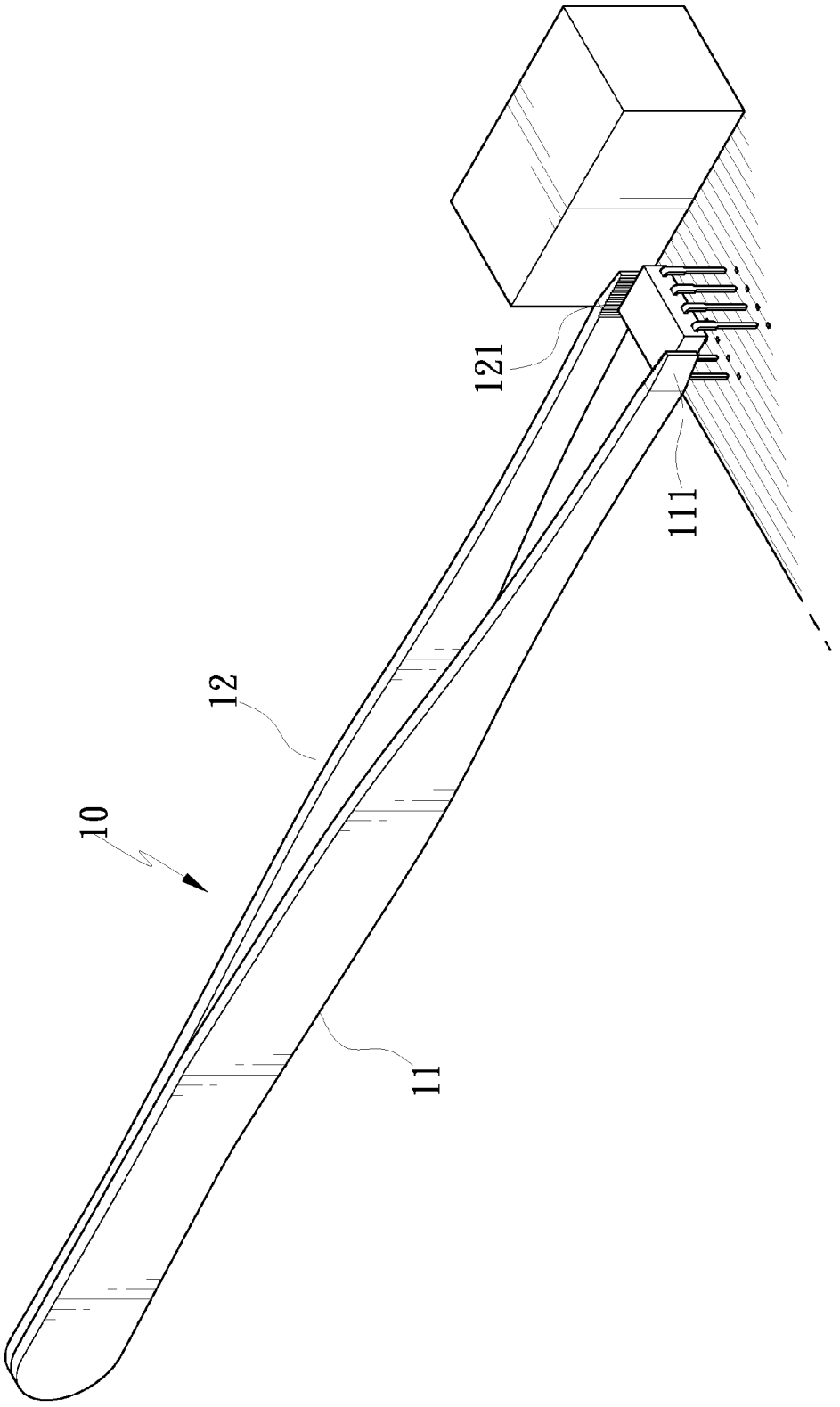


FIG. 2
PRIOR ART

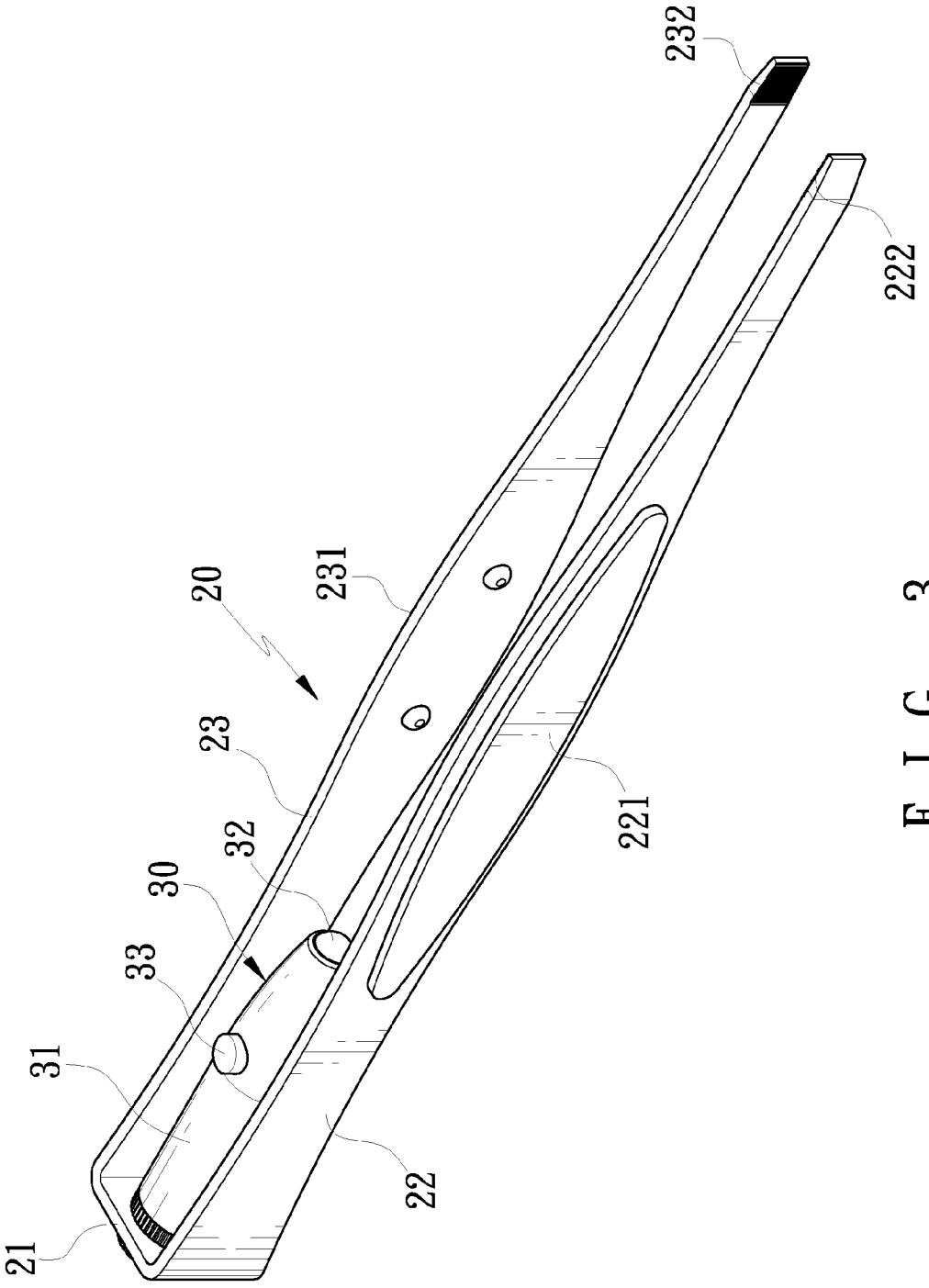


FIG. 3
PRIOR ART

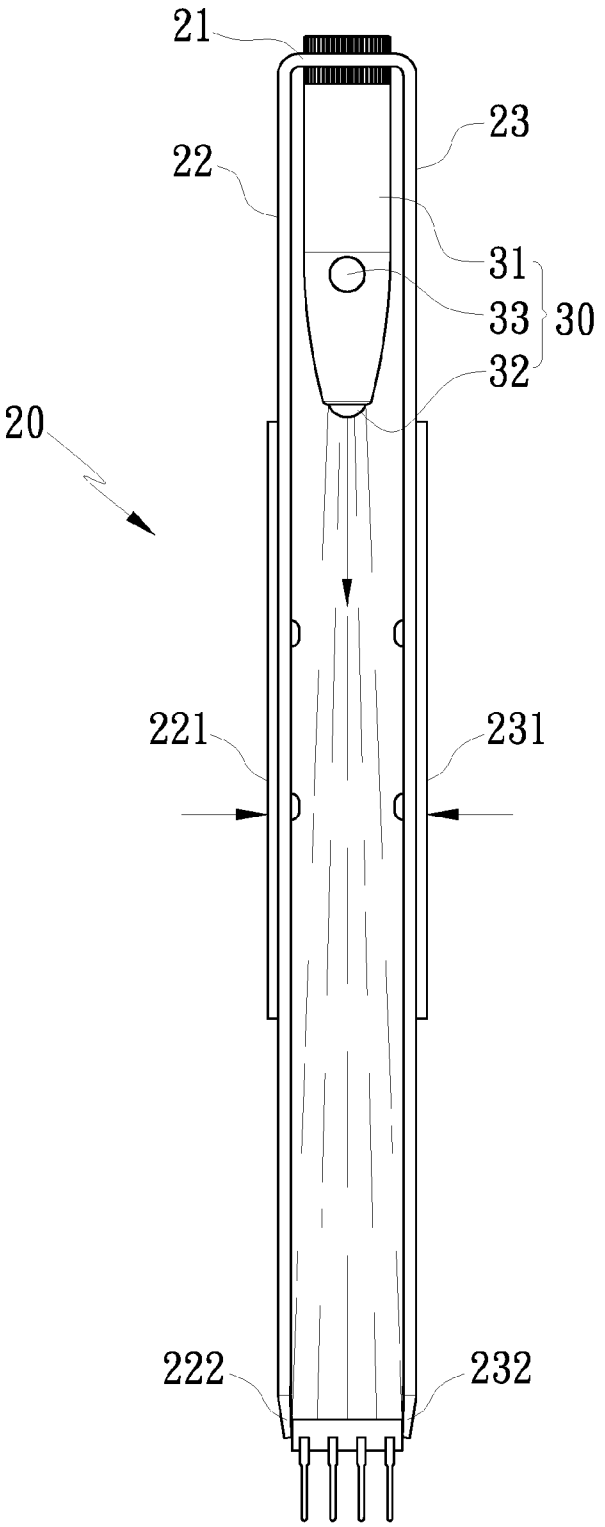


FIG. 4
PRIOR ART

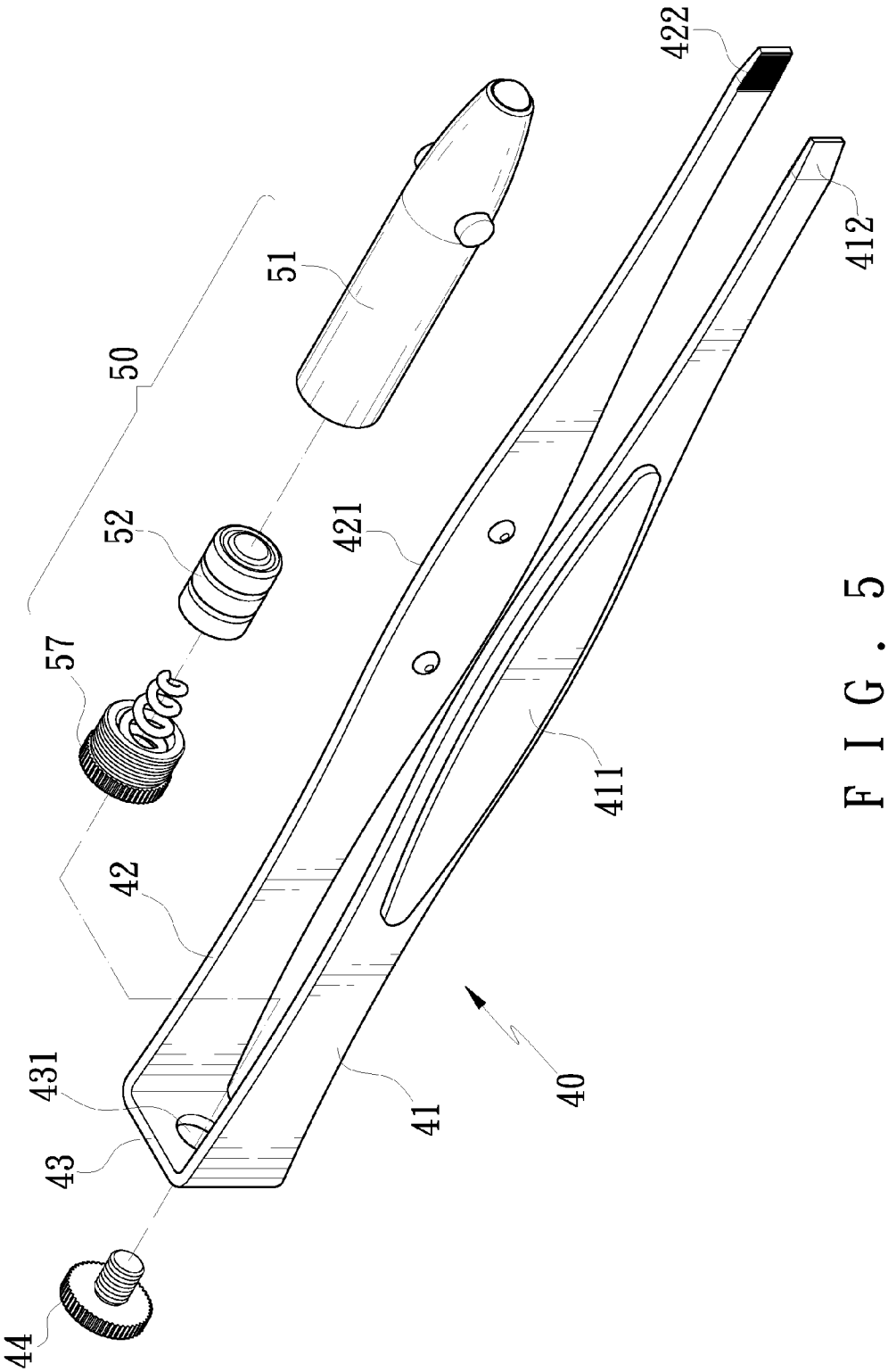


FIG. 5

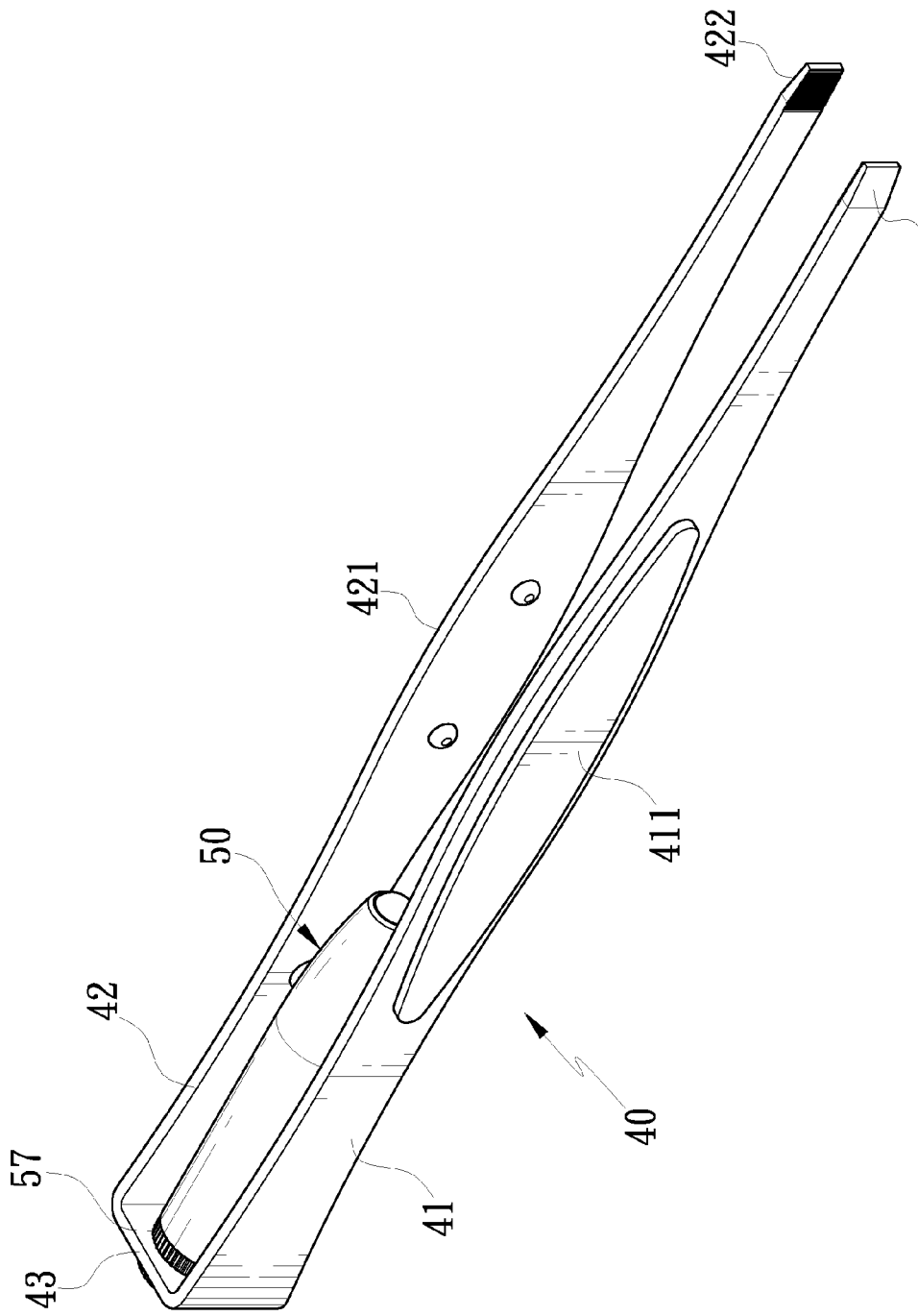


FIG. 6

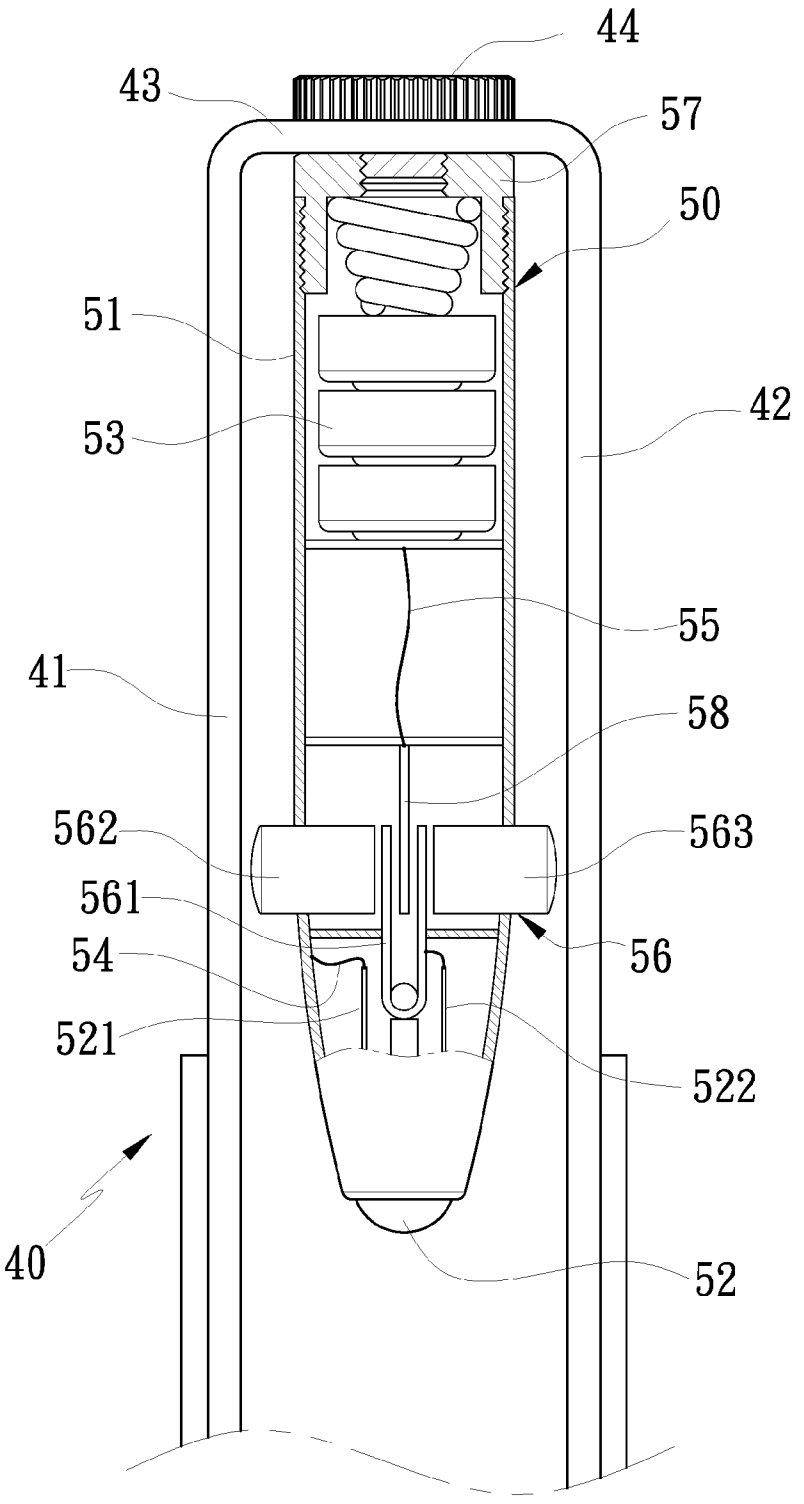
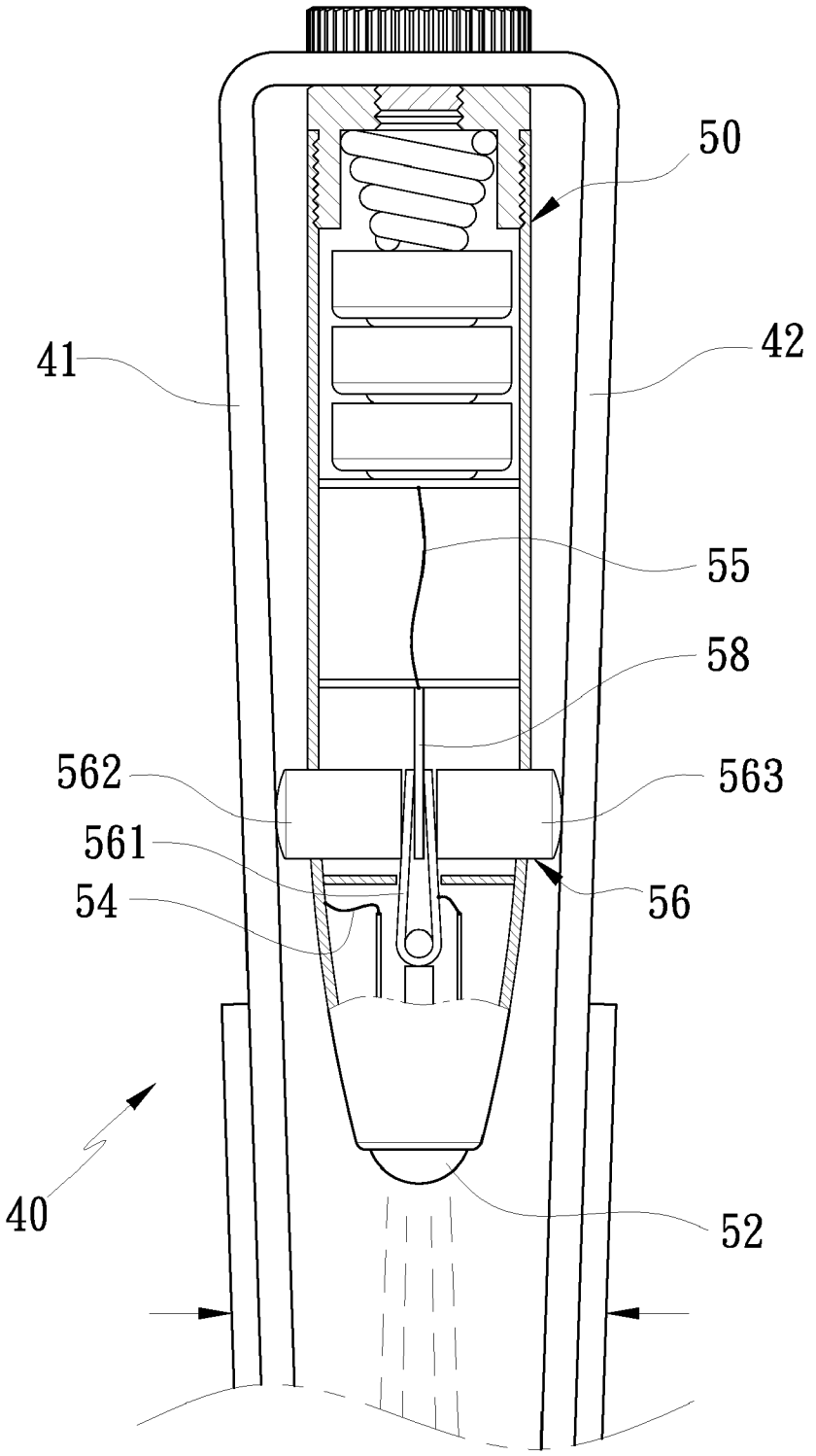


FIG. 7



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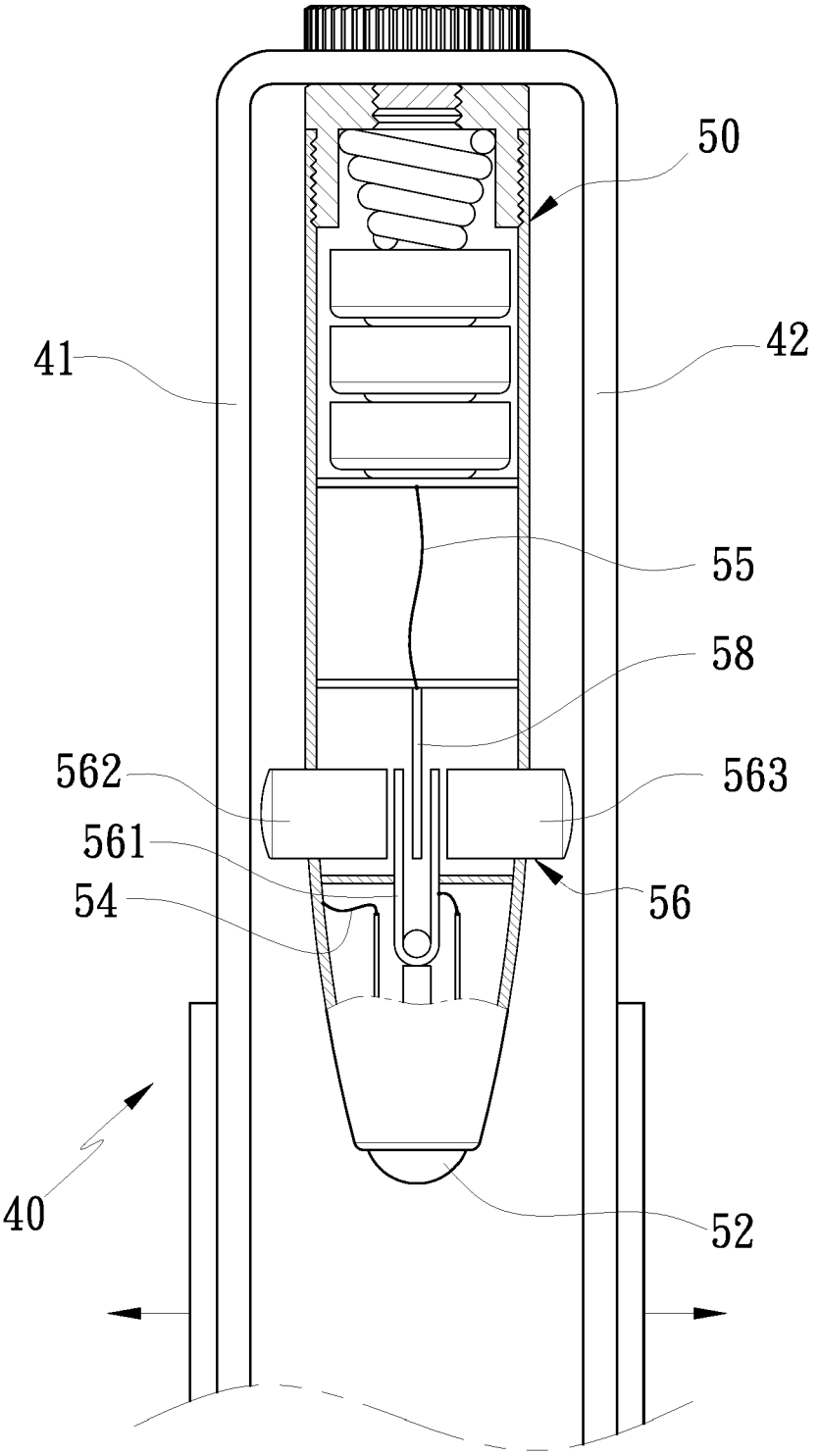

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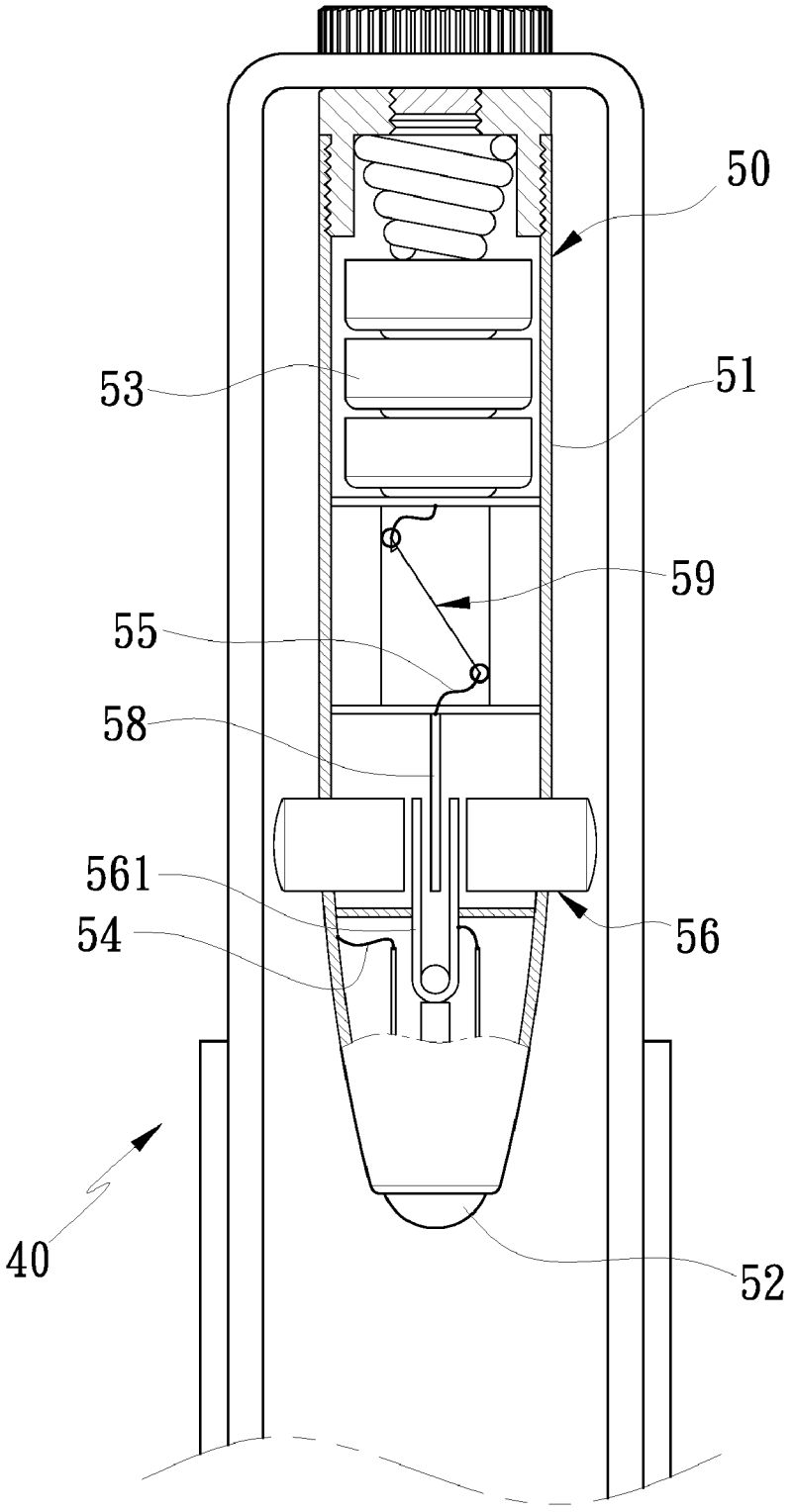


FIG. 10

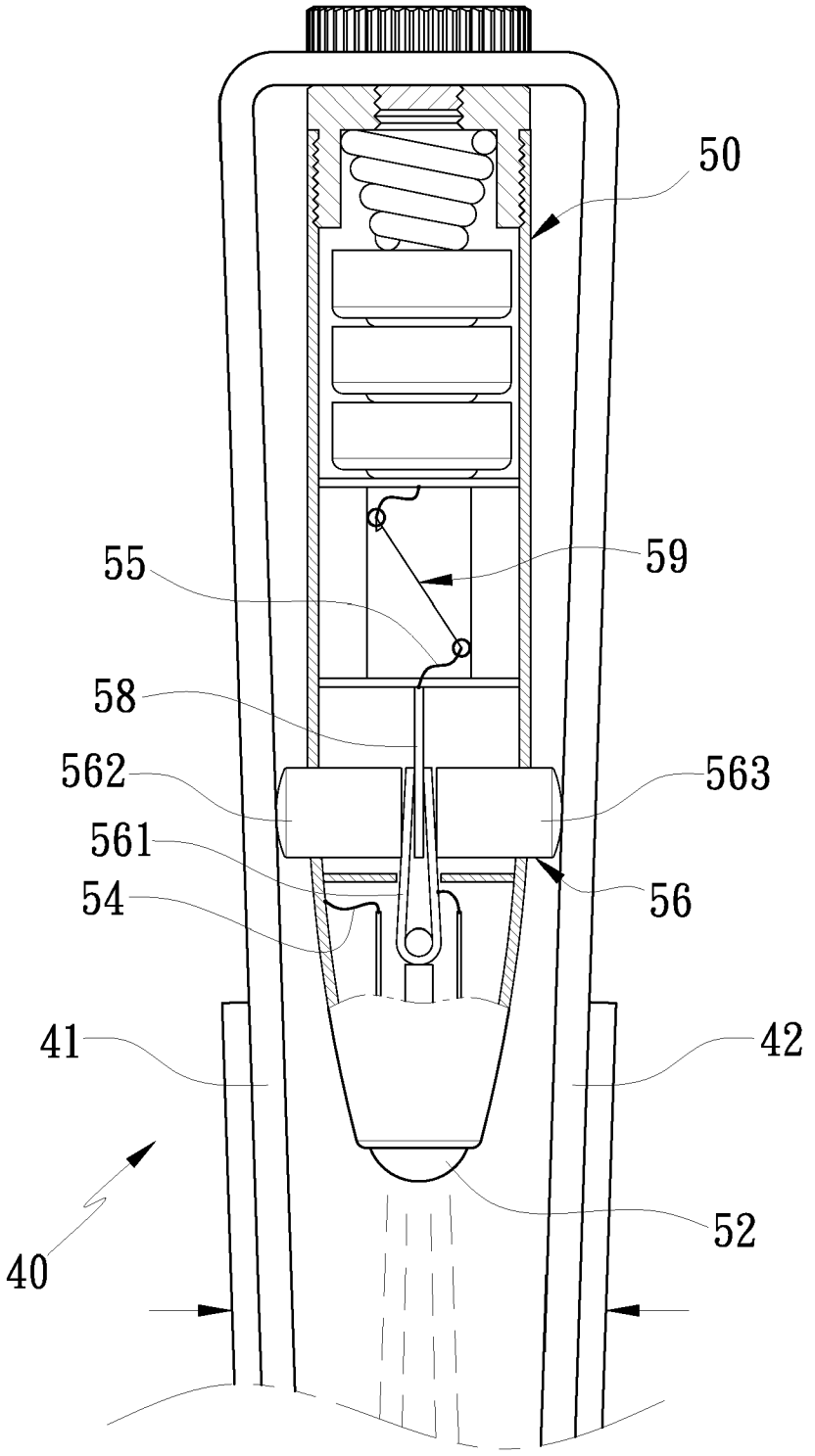
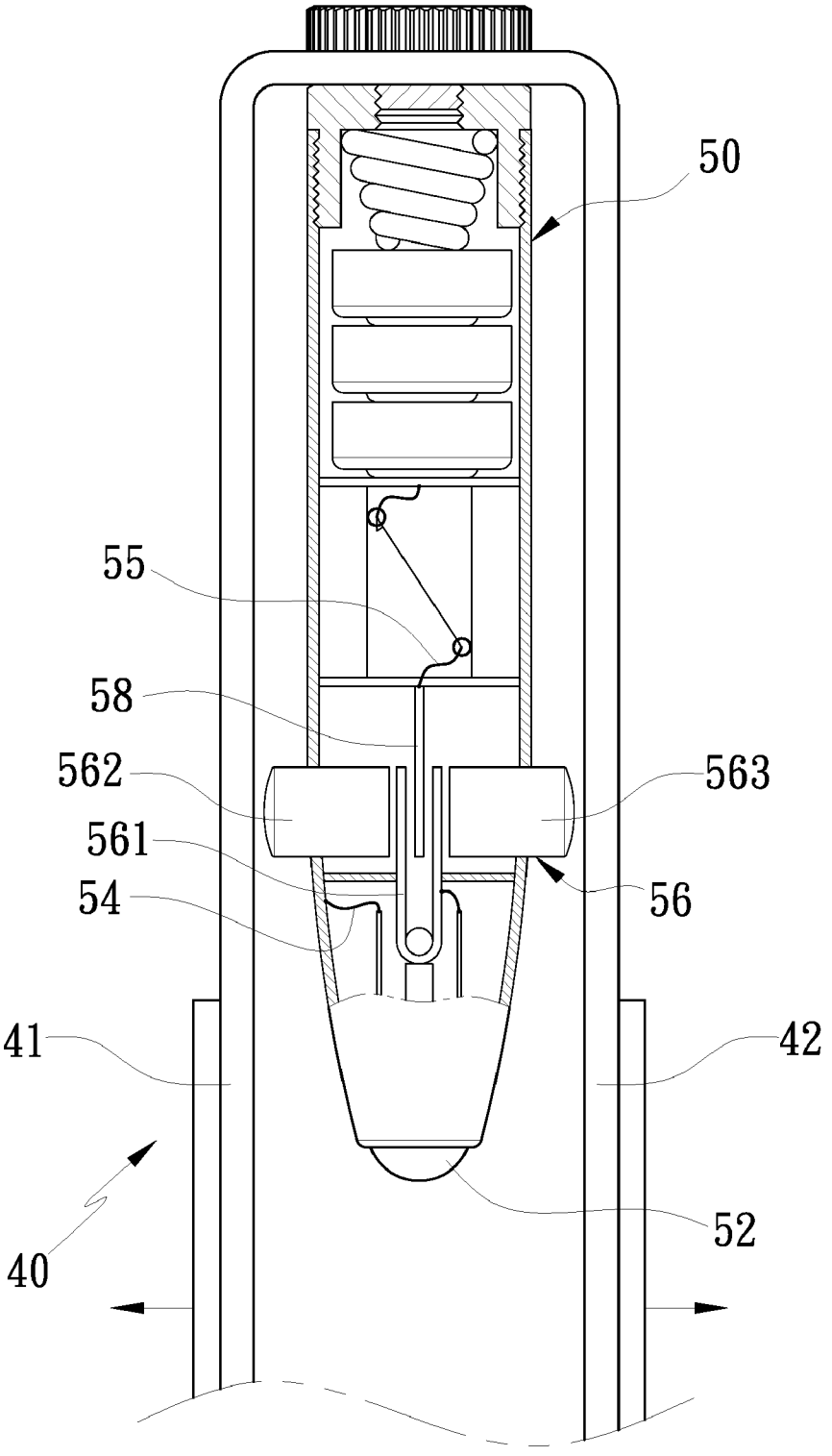


FIG. 11



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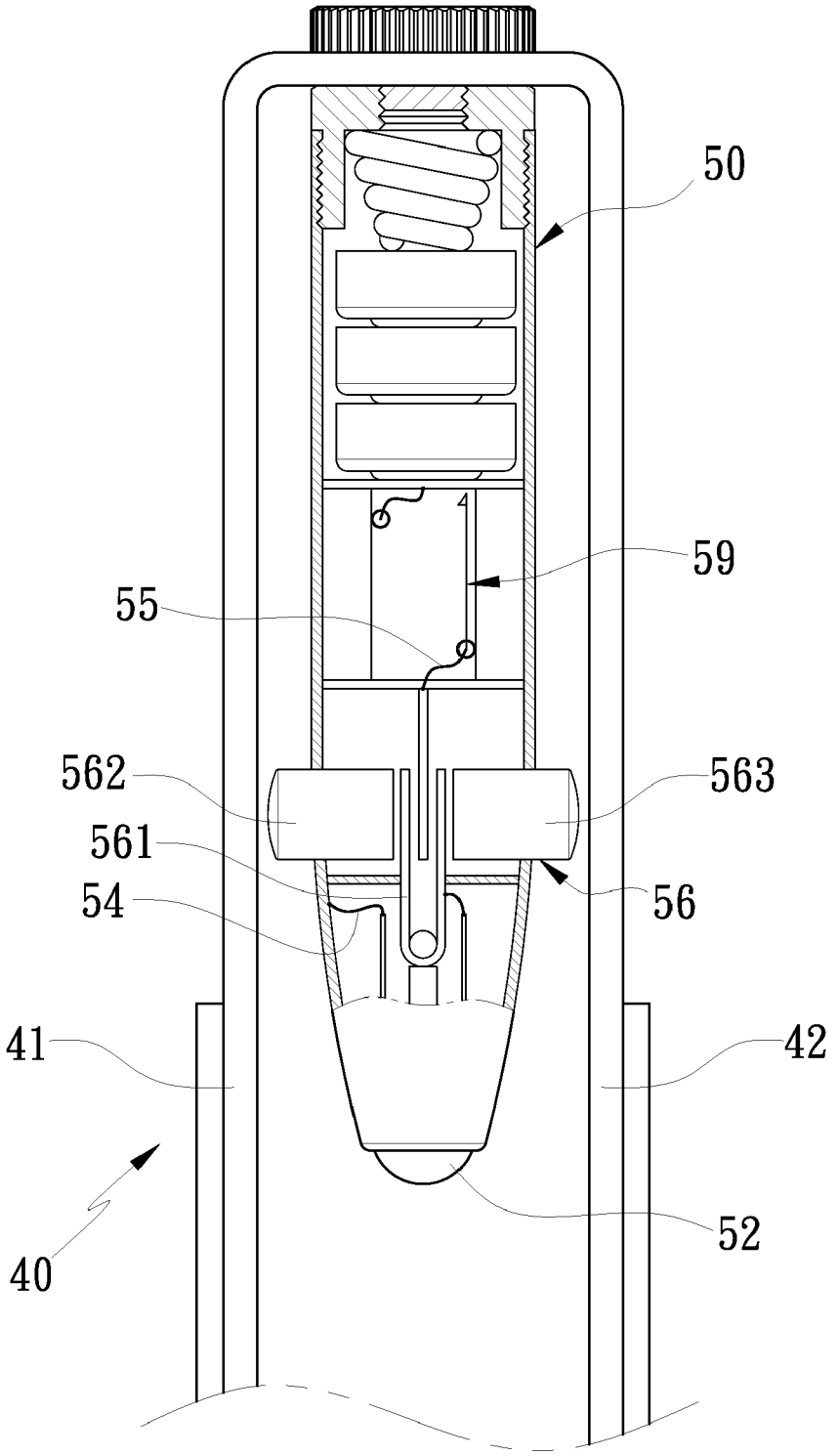

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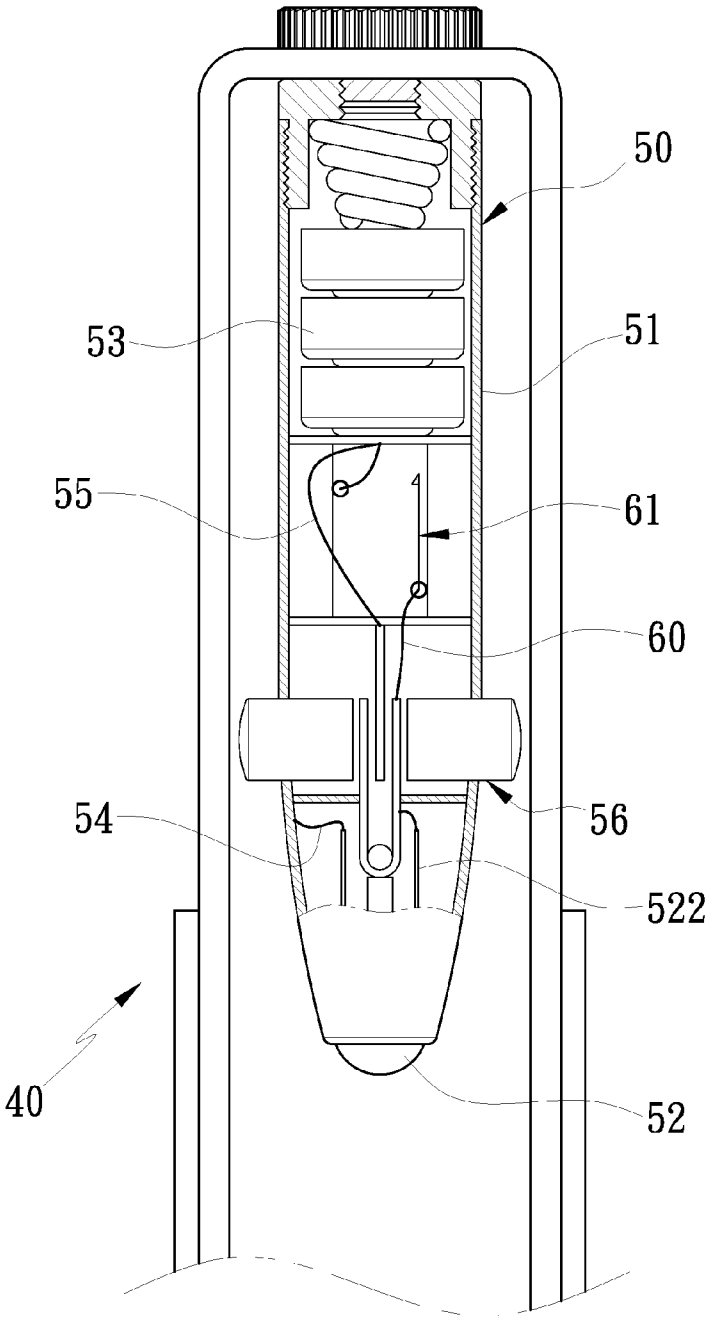
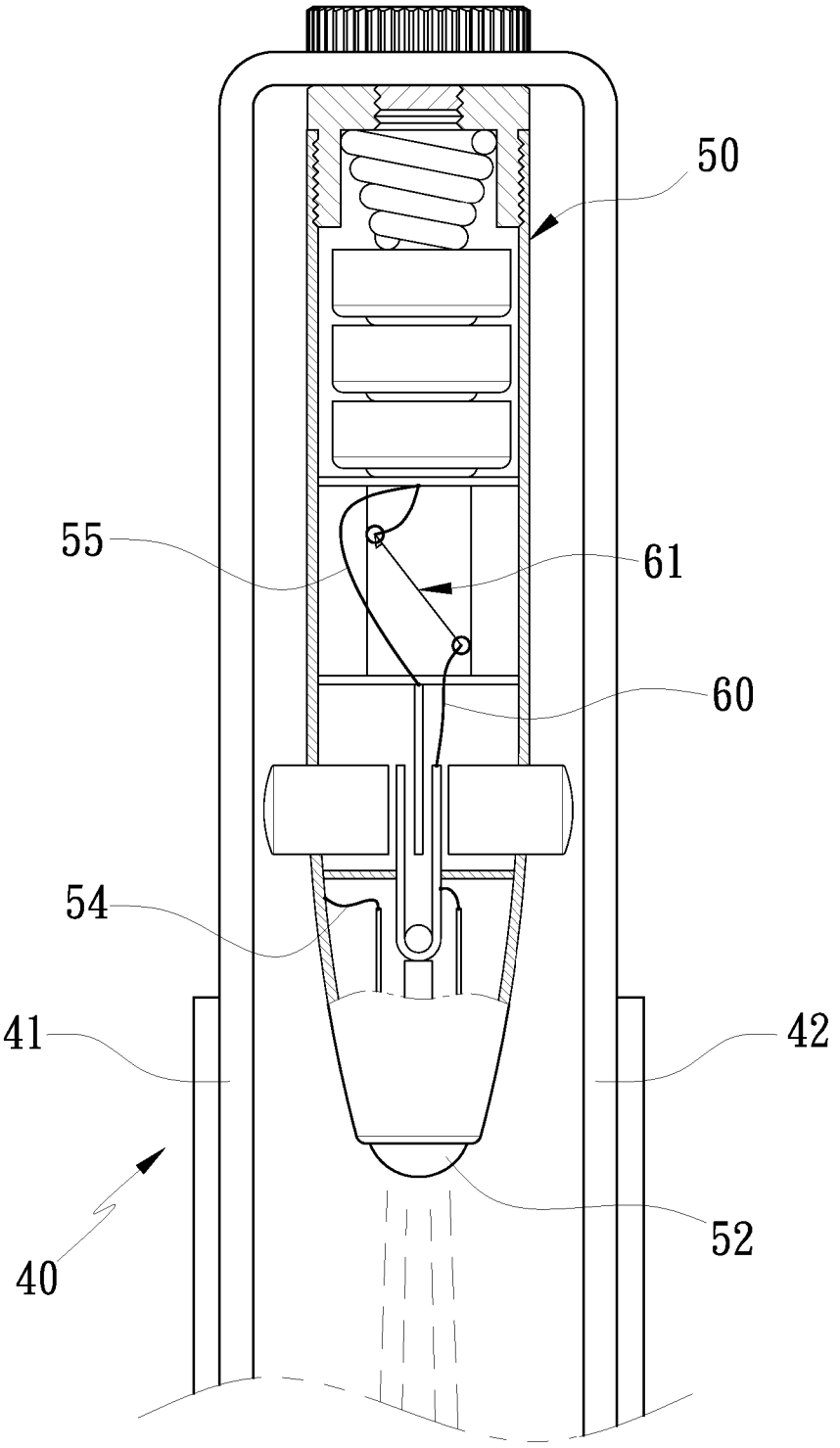


FIG. 14



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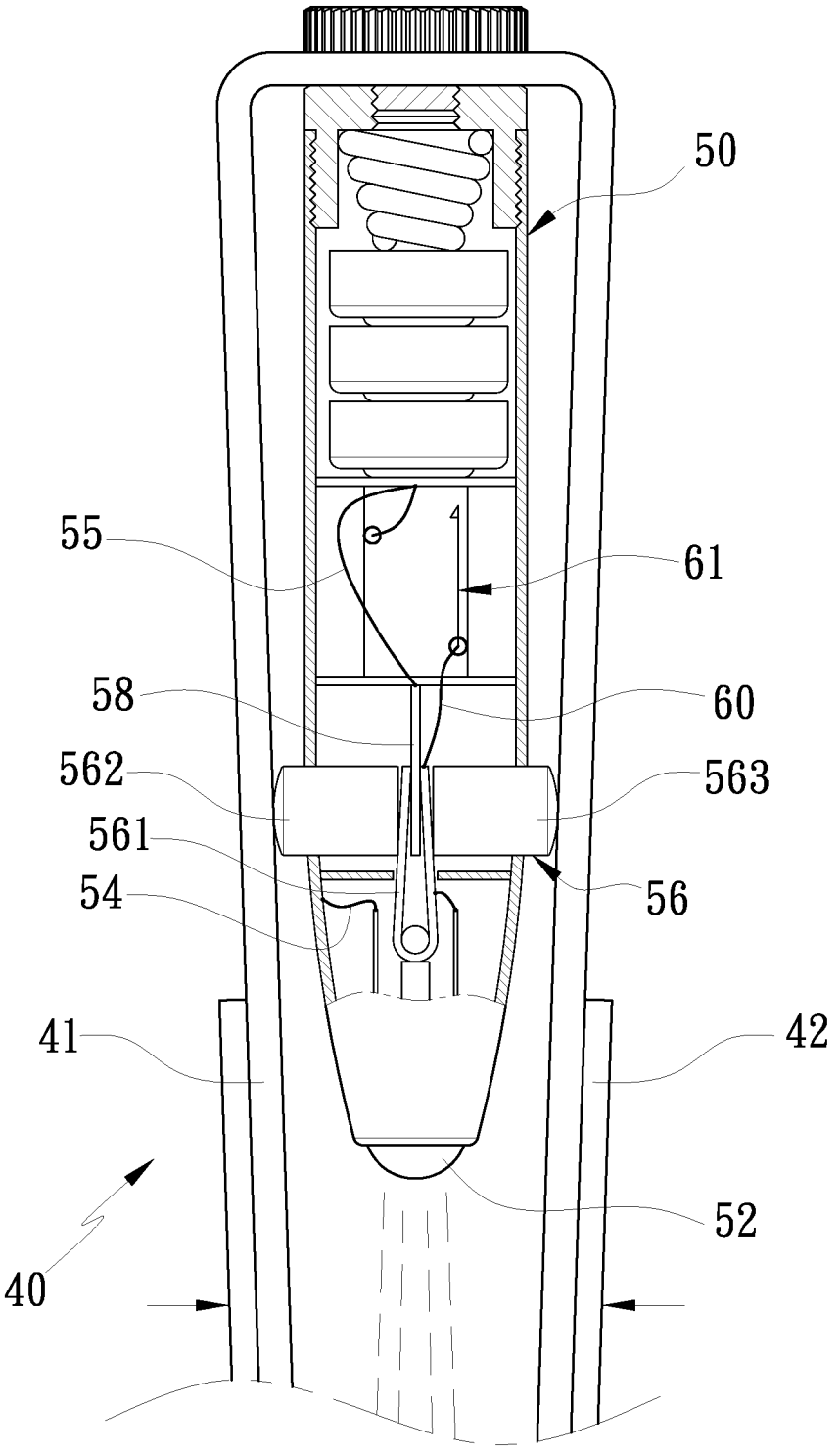

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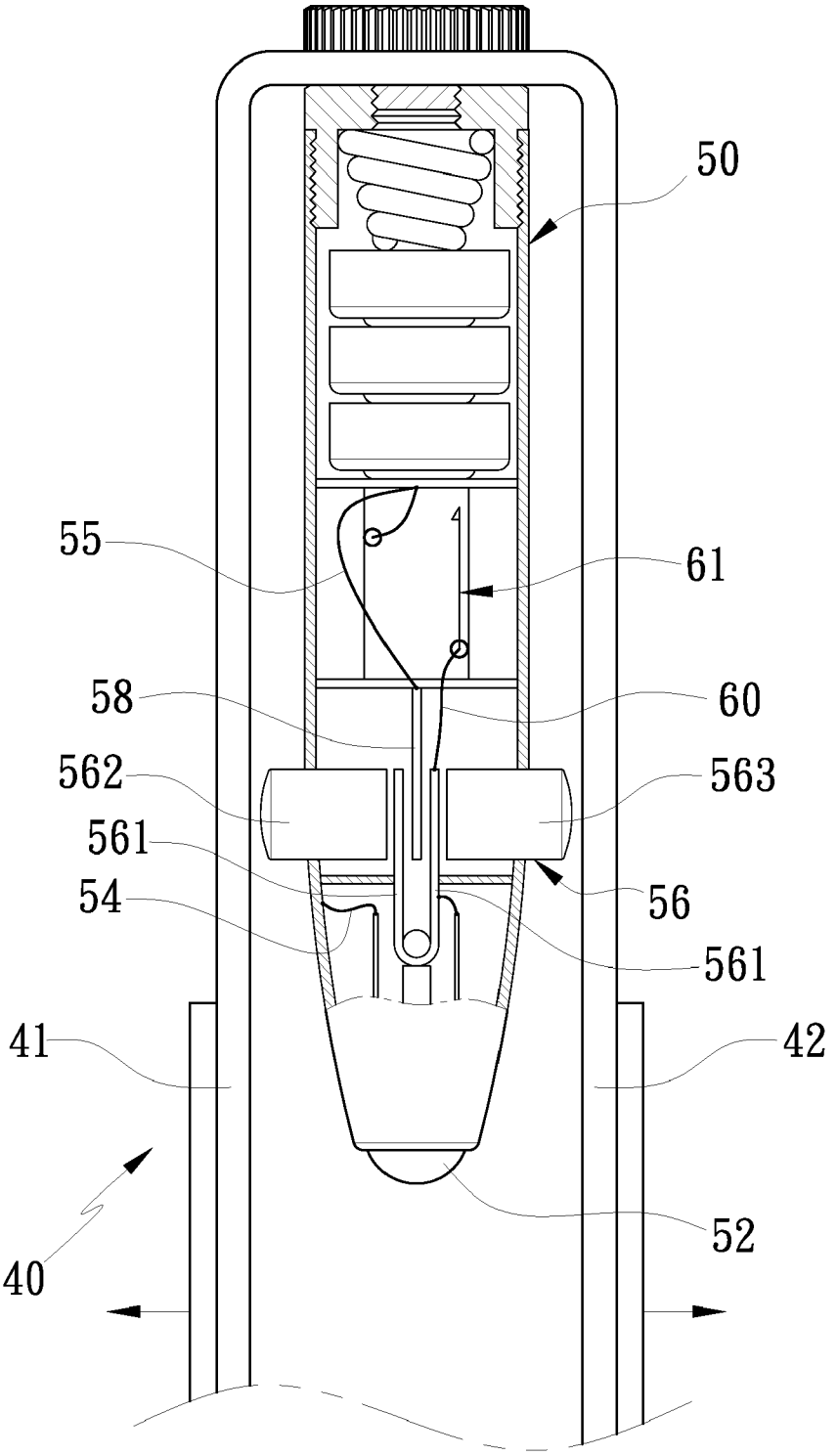

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CLIP WITH LIGHT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a clip with a light to clip an object and obtain a power saving purpose.

2. Description of the Prior

A convention precise clip is used to clip a tiny and precise object. Referring to FIGS. **1** and **2**, a clip **10** includes a first and a second clip members **11**, **12**, and the first and the second clip members **11**, **12** include a first and a second clipping portions **111**, **121** disposed on front ends thereof respectively, and rear ends of the first and the second clip members **11**, **12** being connected with each other. The first and the second clip members **11**, **12** are flexibly pressed to clip an object, however, such a conventional clip can not make illumination in a dim environment to clip the object precisely.

To improve such a defect, an improved clip with a light has been developed. As shown in FIGS. **3** and **4**, an improved clip with a light includes a body **20** having a seat **21** disposed on a rear end thereof, and the seat **21** includes a first and a second clip members **22**, **23** mounted on two sides thereof respectively to be pressed, the first and the second clip members **22**, **23** include a first and a second grip segments **221**, **231** formed on middle portions thereof individually to be held by user, and include a first and a second clipping portions **222**, **223** arranged on front ends thereof respectively to clip the object. The seat **21** of the body **20** includes an illuminating device **30** installed on a bottom surface thereof, and the illuminating device **30** includes a receiving cylinder **31** and a LED light **32** received in the receiving cylinder **31**, the receiving cylinder **31** includes a button **33** fixed thereon to turn on and off the light **32**. In operation, the button **33** is pressed to turn on the illuminating device **30** to make light, clipping the object. Nevertheless, such improved clip with the light still has the following disadvantages:

1. When the user operates the clip, the button **33** is pressed to turn on the illuminating device **30** to make lights, operating inconveniently.

2. After the button **33** is pressed, the light **32** remains in an illuminating state, therefore the button **33** has to be released after finishing clipping operation, having inconvenient operation.

3. After the button **33** is pressed to turn on the light **32**, if the user is desired to stop clipping the object, the light **32** remains in an illuminating status, thereby consuming cells. Besides, the button **33** has to be pressed again to illuminate the light as required.

The present invention has arisen to mitigate and/or obviate the afore-described disadvantages.

SUMMARY OF THE INVENTION

The primary object of the present invention is to provide a clip with a light that is capable of turning on and off the illuminating device automatically based on demands.

A further object of the present invention is to provide a clip with a light that when the switch is switched to a first position, the switch is in a circuit conducting status, and the first and the second clip members are pressed or released to turn on and off the illuminating device automatically, and when the switch is switched to a second position, the switch is in a circuit breaking state so that the power circuit is broken to turn off the illuminating device, thus operating the clip without illumination based on requirement.

Another object of the present invention is to provide a clip with a light that the receiving cylinder is additionally provided with another power circuit series connected a switch, and when the switch is switched to a first position, the switch is conducted so that the power circuit is conducted to keep illuminating the light based on requirement, and when the switch is switch to a second position, the switch is in a circuit breaking state so that the first and the second clip members are pressed and released to turn on and off the illuminating device based on demands.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view a conventional clip;

FIG. **2** is a perspective view showing the operation of the conventional clip;

FIG. **3** is a perspective view of a conventional clip with a light;

FIG. **4** is a cross sectional view showing the operation of the conventional clip with the light;

FIG. **5** is a perspective view showing the exploded components of a clip with a light according to a first embodiment of the present invention;

FIG. **6** is a perspective view showing the assembly of the clip with the light according to the first embodiment of the present invention;

FIG. **7** is a cross sectional view showing a part of the clip with the light according to the first embodiment of the present invention;

FIG. **8** is a cross sectional view showing the operation of the clip with the light according to the first embodiment of the present invention;

FIG. **9** is another cross sectional view showing the operation of the clip with the light according to the first embodiment of the present invention;

FIG. **10** is a cross sectional view showing a part of a clip with a light according to a second embodiment of the present invention;

FIG. **11** is a cross sectional view showing the operation of the clip with the light according to the second embodiment of the present invention;

FIG. **12** is another cross sectional view showing the operation of the clip with the light according to the second embodiment of the present invention;

FIG. **13** is also another cross sectional view showing the operation of the clip with the light according to the second embodiment of the present invention;

FIG. **14** is a cross sectional view showing a part of a clip with a light according to a third embodiment of the present invention;

FIG. **15** is a cross sectional view showing the operation of the clip with the light according to the third embodiment of the present invention;

FIG. **16** is another cross sectional view showing the operation of the clip with the light according to the third embodiment of the present invention;

FIG. **17** is also another cross sectional view showing the operation of the clip with the light according to the third embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will be clearer from the following description when viewed together with the accompanying

drawings, which show, for purpose of illustrations only, the preferred embodiment in accordance with the present invention.

Referring to FIGS. **5** and **6**, a clip with a light according to a first embodiment of the present invention comprises a body **40** and an illuminating device **50**, the body **40** including a flexible first clip member **41** and a second clip member **42**, and between rear ends of the first and the second clip members **41**, **42** being disposed a seat **43**, and the first and the second clip member **41**, **42** including a first and a second grip segments **411**, **421** mounted on middle portions thereof respectively to be held by a user, and including a first and a second clipping portions **412**, **422** fixed on front ends thereof individually and formed in a point, curve, or straight shape. In this embodiment, the first and the second clipping portions **412**, **422** are straight and include sawtooth surfaces arranged thereon individually. Furthermore, the body **40** includes the illuminating device **50** secured thereon. In this embodiment, the illuminating device **50** is arranged on an inner side of the seat **43** of the body **40**, and the seat **43** includes a hole **431** disposed thereon to insert a screwing element **44** with threads **441** so that the illuminating device **50** is screwed with the screwing element **44** to be positioned between the first and the second clipping members **41**, **42**.

Referring to FIG. **7**, the illuminating device **50** includes the receiving cylinder **51**, a light **52** received in the receiving cylinder **51**, a cell set **53** to supply power to the light **52**, a first power circuit **54**, a second power circuit **55**, a flexible actuating member **56**, and a cover **57**, wherein a rear end of the cover **57** is screwed with the screwing element **44** so that the illuminating device **50** is screwed to the seat **43**, and a front end of the cover **57** is screwed with the receiving cylinder **51** to abut against an electrode of a rear end of the cell set **53**, the first power circuit **54** includes an electrode of the rear end of the cell set **53** electrically connected to a first connecting leg **521** of the light **52**. In this embodiment, the first power circuit **54** includes the electrode of the rear end of the cell set **53** electrically connected to the cover **57** and is conducted to an inner wall of the receiving cylinder **51**, and then is electrically connected to the first connecting leg **521** of the light **52**. The second power circuit **55** includes a second connecting leg **522** of the light **52** electrically coupled to an electrode of the rear end of the cell set **53** so as to form an electrical circuit with the first power circuit **54**, wherein the first power circuit **54** or the second power circuit **55** includes a flexible actuating member **56** series connected thereon. In this embodiment, the actuating member **56** is series connected to the second power circuit **55**, and the actuating member **56** includes an electrically conductive U-shaped resilient piece **561** to flexibly expand and retract, and the resilient piece **561** includes pressing blocks **562**, **563** disposed on two outer sides thereof to extend out of the receiving cylinder **51** and correspond to the first and the second clip members **41**, **42** respectively, and the receiving cylinder **51** includes an electricity conducting member **58** mounted therein in response to an inner wall of the resilient piece **561**, and one end of the second power circuit **55** is in connection with the electricity conducting member **58**, another end of the second power circuit **55** couples with the resilient piece **561** so that the actuating member **56** controls the light **52** to turn on and off.

As shown in FIG. **8**, when the user presses the first and the second clip members **41**, **42** to clip an object, the first and the second clip member **41**, **42** press the pressing blocks **562**, **563** of the actuating member **56** to move inward so that the resilient piece **561** contacts with the electricity conducting member **58**, hence the first and the second power circuits **54**, **55** generate a conduced circuit to turn on the light **52**, making an illumination.

Referring to FIG. **9**, when the user releases the first and the second clip members **41**, **42**, the first and the second clip members **41**, **42** remove from the pressing blocks **562**, **563** of the actuating member **56** so that the resilient piece **561** does not contact with the electricity conducting member **58** and the second power circuit **55** generates a circuit break to turn off the light **52** automatically.

As illustrated in FIG. **10**, a clip with a light according to a second embodiment of the present invention comprises a body **40** and an illuminating device **50**, both of which are identical to those of the first embodiment, and a difference between the first and the second embodiments includes a receiving cylinder **51** having a switch **59** series connected to a power circuit. In this embodiment, the switch **59** is series connected to a second power circuit **55**, and includes one end electrically coupled to an electricity conducting member **58**, and another end electrically connected to an electrode of a front end of a cell set **53** so that the switch **59** and an actuating member **56** control a light **52** to turn on and off.

With reference to FIG. **11**, when the switch **59** is switched to a first position, because the switch **59** remains in a conducting status, as a user presses a first and a second clip members **41**, **42** to clip an object, the first and the second clip members **41**, **42** abuts against pressing blocks **562**, **563** of the actuating member **56** so that an U-shaped resilient piece **561** contacts with the electricity conducting member **58**, and a first and the second power circuits **54**, **55** generate a conducted circuit, turning on the light **52** automatically.

As shown in FIG. **12**, when the user releases the first and the second clip members **41**, **42**, the first and the second clip members **41**, **42** remove from the pressing blocks **562**, **563** of the actuating member **56** so that the resilient piece **56** does not contact with the electricity conducting member **58**, and the second power circuit **55** generate a circuit break to turn off the light **52** automatically.

Referring to FIG. **13**, when the switch **59** is switched to a second position, because the switch **59** remains in a circuit breaking status, no matter the first and the second clip members **41**, **42** are pressed, a break circuit is generated to turn off the light **52**, thus operating the clip without illumination based on requirement.

As illustrated in FIG. **14**, a clip with a light according to a third embodiment of the present invention comprises a body **40** and an illuminating device **50**, both of which are identical to those of the first embodiment, and a difference between the first and the third embodiments includes a receiving cylinder **51** additionally provided with another power circuit. In this embodiment, the another power circuit is a third power circuit **60**, wherein the third power circuit **60** includes one end electrically connected to a second connecting leg **522** of the light **52**, and includes another end electrically coupled to an electrode of a front end of a cell set **53** to form another circuit with a first power circuit **54**, and the third power circuit **60** is series connected to a switch **61** so that the switch **61** allows to control the third power circuit **60** in an electricity conducting or breaking status to turn on and off the light **52** with an actuating member **56**.

With reference to FIG. **15**, when the switch **61** of the third power circuit **60** is switched to the first position, due to the switch **61** remains in an electricity conducting state, the first and the third power circuits **54**, **60** generate a conducting circuit, no matter the first and the second clip members **41**, **42** are pressed, the circuit is conducted to turn on the light **52**, therefore the clip is operated without turning on the light.

As shown in FIG. **16**, as the switch **61** of the third power circuit **60** is switched to a third position, because the switch **61** remains in an electricity breaking state, the third power circuit **60** is in an electricity breaking status as well, and when a user presses the first and the second clip members **41**, **42** to clip an object, the first and the second clip members **41**, **42** push the pressing blocks **562**, **563** of the switch **56** to move inward, and the resilient piece **561** contacts with the electricity conducting member **58** so that the first and the second power circuits **54**, **55** generate a conducted circuit to turn on the light **52** automatically.

As illustrated in FIG. **17**, when the user releases the first and the second clip members **41**, **42**, the first and the second clip members **41**, **42** remove from the pressing blocks **562**, **563** of the actuating member **56** so that the resilient piece **561** does not contact with the electricity conducting member **58** to generate an electricity break, turning off the light **52** automatically.

While we have shown and described various embodiments in accordance with the present invention, it is clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

What is claimed is:

1. A clip with a light comprising

a body and an illuminating device, the body including a first and a second clip members is flexibly pressed, and the illuminating device disposed between the first and the second clip members, and including:

a receiving cylinder;

a light received in the receiving cylinder and having a first and a second connecting legs;

a cell set received in the receiving cylinder to supply power to the light;

a power circuit unit mounted in the receiving cylinder and having an electrode of a rear end of the cell set electrically connected to the first connecting leg of the light, and the second connecting leg of the light electrically coupled to the electrode of a front end of the cell set;

an actuating member series connected onto the power circuit and having pressing blocks extending out of the receiving cylinder to correspond to the first and the second clip members and to press and release the first and the second clip members, so that the actuating member controls the light to turn on and off.

2. The clip with the light as claimed in claim **1**, wherein between rear ends of the first and the second clip members is disposed a seat.

3. The clip with the light as claimed in claim **2**, wherein the seat includes a hole disposed thereon to insert a screwing element so that the illuminating device is screwed with the screwing element is positioned between the first and the second clipping members.

4. The clip with the light as claimed in claim **1**, wherein the receiving cylinder includes a cover screwed on a rear end thereof to abut against the electrode of the rear end of the cell set.

5. The clip with the light as claimed in claim **1**, wherein the power circuit unit includes a first and a second power circuit, the first power circuit includes the electrode of the rear end of the cell set electrically connected to the first connecting leg of the light, and the second power circuit includes the second connecting leg of the light electrically coupled to the electrode of the front end of the cell set.

6. The clip with the light as claimed in claim **1**, wherein the actuating member includes an electrically conductive U-shaped resilient piece to flexibly expand and retract, and the resilient piece includes pressing blocks disposed on two outer sides thereof to extend out of the receiving cylinder and correspond to the first and the second clip members respectively, and the receiving cylinder includes an electricity conducting member mounted therein in response to an inner wall of the resilient piece, and one end of the second power circuit is in connection with the electricity conducting member, another end of the second power circuit couples with the resilient piece so that the actuating member controls the light to turn on and off.

7. A clip with a light comprising

a body and an illuminating device, the body including a first and a second clip members is flexibly pressed, and the illuminating device disposed between the first and the second clip members, and including:

a receiving cylinder;

a light received in the receiving cylinder and having a first and a second connecting legs;

a cell set received in the receiving cylinder to supply power to the light;

a power circuit unit mounted in the receiving cylinder and having an electrode of a rear end of the cell set electrically connected to the first connecting leg of the light, and the second connecting leg of the light electrically coupled to the electrode of a front end of the cell set;

an actuating member series connected onto the power circuit and having pressing blocks extending out of the receiving cylinder to correspond to the first and the second clip members and to press and release the first and the second clip members, so that the actuating member controls the light to turn on and off;

a switch series connected to the power circuit unit to conduct or break the power circuit.

8. The clip with the light as claimed in claim **7**, wherein between rear ends of the first and the second clip members is disposed a seat.

9. The clip with the light as claimed in claim **7**, wherein the seat includes a hole disposed thereon to insert a screwing element so that the illuminating device is screwed with the screwing element is positioned between the first and the second clipping members.

10. The clip with the light as claimed in claim **7**, wherein the receiving cylinder includes a cover screwed on a rear end thereof to abut against the electrode of the rear end of the cell set.

11. The clip with the light as claimed in claim **7**, wherein the power circuit unit includes a first and a second power circuit, the first power circuit includes the electrode of the rear end of the cell set electrically connected to the first connecting leg of the light, and the second power circuit includes the second connecting leg of the light electrically coupled to the electrode of the front end of the cell set.

12. The clip with the light as claimed in claim **7**, wherein the actuating member includes an electrically conductive U-shaped resilient piece to flexibly expand and retract, and the resilient piece includes pressing blocks disposed on two outer sides thereof to extend out of the receiving cylinder and correspond to the first and the second clip members respectively, and the receiving cylinder includes an electricity conducting member mounted therein in response to an inner wall of the resilient piece, and one end of the second power circuit is in connection with the electricity conducting member, another end of the second power circuit couples with the resilient piece so that the actuating member controls the light to turn on and off.

13. The clip with the light as claimed in claim **7**, wherein when the switch is switched to a first position, the switch is conducted so that the actuating member controls the light to

be turned on and off, and when the switch is switched to a second position, the switch is broken so that the power circuit is broken to keep turning off the light.

14. A clip with a light comprising

a body and an illuminating device, the body including a first and a second clip members is flexibly pressed, and the illuminating device disposed between the first and the second clip members, and including:

a receiving cylinder;

a light received in the receiving cylinder and having a first and a second connecting legs;

a cell set received in the receiving cylinder to supply power to the light;

a first power circuit mounted in the receiving cylinder and having an electrode of a rear end of the cell set electrically connected to the first connecting leg of the light;

a second power circuit mounted in the receiving cylinder and having the second connecting leg of the light electrically coupled to the electrode of a front end of the cell set to form a circuit with the first power circuit;

a third power circuit fixed in the receiving cylinder and includes the second connecting leg of the light electrically connected to the electrode of the front end of the cell set to generate another circuit with the first power circuit;

an actuating member series connected onto the power circuit and having pressing blocks extending out of the receiving cylinder to correspond to the first and the second clip members and to press and release the first and the second clip members, so that the actuating member controls the light to turn on and off;

a switch series connected to the third power circuit to conduct or break the third power circuit.

15. The clip with the light as claimed in claim **14**, wherein between rear ends of the first and the second clip members is disposed a seat.

16. The clip with the light as claimed in claim **15**, wherein the seat includes a hole disposed thereon to insert a screwing element so that the illuminating device is screwed with the screwing element is positioned between the first and the second clipping members.

17. The clip with the light as claimed in claim **14**, wherein the receiving cylinder includes a cover screwed on a rear end thereof to abut against the electrode of the rear end of the cell set.

18. The clip with the light as claimed in claim **14**, wherein the actuating member includes an electrically conductive U-shaped resilient piece to flexibly expand and retract, and the resilient piece includes pressing blocks disposed on two outer sides thereof to extend out of the receiving cylinder and correspond to the first and the second clip members respectively, and the receiving cylinder includes an electricity conducting member mounted therein in response to an inner wall of the resilient piece, and one end of the second power circuit is in connection with the electricity conducting member, another end of the second power circuit couples with the resilient piece so that the actuating member controls the light to turn on and off.

19. The clip with the light as claimed in claim **14**, wherein when the switch is switched to a first position, the switch is conducted so that the actuating member controls the light to be turned on and off, and when the switch is switched to a second position, the switch is broken so that the power circuit is broken to keep turning off the light.

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